

## REMARKS

Claims 1-39 are pending. Claim 32 is amended herein. No new matter is added as a result of the amendment made to Claim 32.

### 102 Rejection

Claims 32-34 are rejected under 35 U.S.C. § 102(b) as being anticipated by Malkin et al. (U.S. Patent No. 6,085,193). The Applicants have reviewed the cited reference and respectfully submit that Malkin et al. does not anticipate or render obvious the embodiments of the present invention as are recited in Claims 32-34.

The Examiner is respectfully directed to independent Claim 32 drawn to a computer program product for use in conjunction with a client computer system that includes:

... a prefetch predictor, executable by the at least one processing unit, for identifying additional files for possible prefetching by the client computer wherein criteria for identifying includes energy efficiency criteria; the server module including instructions for including in a supplemental portion of the reply to the request from the client computer prefetch hint information identifying at least one of the additional files, wherein the supplemental portion is distinct from the content portion of the reply.

Malkin et al. does not teach or suggest a computer system that includes a server module that generates a reply to a request that includes a specified file and “a prefetch predictor ...for identifying additional files for possible prefetching by the client computer wherein criteria for identifying includes energy efficiency criteria” as is set forth in Claim 32 (from which Claims 33 and 34 depend). Malkin et al. only discloses a dissimilar method and system for dynamically prefetching information via a server hierarchy.

In the Malkin et al. system, data access patterns are identified and prefetches select information based on a dynamic interpretation of the data access patterns. However, there is no discussion of energy efficiency being used as a criteria upon which the retrieval of information is based. In fact, the Malkin et al. reference is does not mention energy efficiency at all. Nowhere in the Malkin et al. reference is identifying additional files for possible prefetching using criteria that includes energy efficiency as is recited in Claim 32 (from which Claims 33 and 34 depend) taught or suggested. Consequently, Malkin et al. does not anticipate or render obvious the embodiments of Applicants' invention as is set forth in Claim 32 (from which Claims 33 and 34 depends). As such, Applicants' respectfully submit that Claim 32, and Claims 33-34 dependent on Claim 32 are in condition for allowance.

### 103 Rejections

Claims 1-31 and 37-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shatil et al. (U.S. Patent No. 6,728,840) in view of Saxena (U.S. Patent Pub. No. US2002/0103778). The Applicants have reviewed the cited reference and respectfully submit that Shatil et al. in view of Saxena does not anticipate or render obvious the embodiments of the present invention as are recited in Claims 1-31 and 37-39.

The Examiner is respectfully directed to independent Claim 1 which is drawn to a computer program product for use in conjunction with a client computer system, that includes:

... a prefetch prediction engine coupled to the prefetch prediction model for evaluating the specified files with respect to prefetch criteria, including energy efficiency prcfetch criteria, and generating a prefetch decision with respect to each file of the specified files; instructions for storing in a queue entries identifying each specified file for which the prefetch prediction engine generates an

affirmative prefetch decision; and instructions for fetching files identified by entries in the queue.

Claims 11, 21, 37, 38 and 39 recite limitations similar to those found in Claim 1. Claims 2-10 depend from Claim 1, Claims 12-20 depend from Claim 11, and Claims 22-31 depend from Claim 21 and set forth additional limitations of the claimed invention.

Shatil et al. does not anticipate or render obvious a computer program product that includes a computer program mechanism that includes a prefetch prediction engine coupled to a prefetch prediction model for evaluating specified files “with respect to prefetch criteria” that includes “energy efficiency prefetch criteria” as is set forth in Claim 1 (Claims 11, 21, 32, 37, 38 and 39 contain similar limitations, or similar limitations related to cost efficiency). In order to meet the limitations of Claims 1, 11, 21, 32, 37, 38 and 39, Shatil et al. must show or suggest, either expressly or inherently, in addition to all the other limitations of these Claims, a prefetch prediction engine: (1) that evaluates files using efficiency prefetch criteria (energy or cost), and that (2) generates a prefetch decision for each evaluated file. Applicants respectfully submit that these limitations or not met by Shatil et al.

In contrast to the embodiment of Applicants’ invention set forth in Claim 1, Shatil et al. discloses a method and apparatus that provides host controlled caching of data in a storage system. Shatil et al. discloses that requests for access to data are authorized by reference to prefetch criteria. In addition, the prefetch criteria is employed to generate information that controls the caching of data. Importantly, Shatil et al. indicates that prefetch criteria may include information that specifies the data that respective requestors may access. However, none of the prefetch criteria discussed in Shatil et al. is related to energy or cost efficiency.

Saxena does not teach or suggest a modification of Shatil et al. that would remedy the deficiencies of Shatil et al. that are discussed above. More specifically, Saxena does not teach or suggest a computer program product that includes a computer program mechanism that includes “a prefetch prediction engine coupled to the prefetch prediction model for evaluating the specified files with respect to prefetch criteria, including energy efficiency prefetch criteria, and generating a prefetch decision with respect to each file of the specified files” as is set forth in Claim 1 (Claims 11, 21, 32, 37, 38 and 39 contain similar limitations, or similar limitations related to cost efficiency).

Saxena only teaches a method and system for adaptive prefetching. In the Saxena system, whether or not a cache server performs a prefetch of a web page from an origin server depends on the importance (“weight”) of a system link and an associated web page to an origin server. It is very important to note that the importance of a system link and associated web page to an origin server is very different from an objective measure of energy efficiency or cost as is required to meet the limitations of Claim 1, 11, 21, 32, 37, 38 and 39. In fact, nowhere, in the Saxena reference is it shown or suggested that energy or cost efficiency criteria be used as a basis for a prefetch decision. Consequently, Shatil et al. and Saxena either alone or in combination do not anticipate or render obvious the embodiments of Applicants’ invention as are set forth in Claims 1, 11, 21, 32, 37, 38 and 39.

Consequently, Applicants respectfully submit that Claims 1, 11, 21, 32, 37, 38 and 39 are in condition for allowance. Additionally, Applicants also respectfully submit that the cited combination does not anticipate or render obvious the present claimed invention as is recited in Claims 2-10 dependent on Claim 1, Claims 12-20 dependent on Claim 11, and

Claims 22-30 dependent on Claim 21 and that Claims 2-10, 12-20 and 22-31 overcome the basis for rejection under 35 U.S.C. 103 as being dependent on an allowable base claims.

Claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Malkin et al. (U.S. Patent No. 6,085,193) in view of Shinozaki (US Patent No. 6,173,392). The Applicants have reviewed the cited references and respectfully submit that Malkin et al. in view of Shinozaki does not anticipate or render obvious the present invention as is recited in Claims 35 and 36.

Malkin et al. does not teach or suggest a computer system that includes a server module that generates a reply to a request that includes a specified file and “a prefetch predictor ...for identifying additional files for possible prefetching by the client computer wherein criteria for identifying includes energy efficiency criteria” as is set forth in Claim 32 (from which Claims 35 and 36 depend). Malkin et al. only discloses a dissimilar method and system for dynamically prefetching information via a server hierarchy.

In the Malkin et al. system, data access patterns are identified and prefetches select information based on a dynamic interpretation of the data access patterns. However, there is no discussion of energy efficiency being used as a criteria upon which the retrieval of information is based. In fact, the Malkin et al. reference does not mention energy efficiency at all. Nowhere in the Malkin et al. reference is identifying additional files for possible prefetching using criteria that includes energy efficiency criteria as is recited in Claim 32 (from which Claims 35 and 36 depend) taught or suggested. Consequently, Malkin et al. does not anticipate or render obvious the embodiments of Applicants’ invention as are set forth in Claims 35 and 36.

Shinozaki does not teach or suggest a modification of Malkin et al. that would remedy the deficiencies of Malkin et al. noted above. Shinozaki only teaches a prefetch controller that automatically updates a history of accessed addresses. Nowhere, in the Shinozaki reference is identifying additional files for possible prefetching using criteria that includes energy efficiency criteria as is recited in Claim 32 (from which Claims 35 and 36 depend) taught or suggested. Consequently, Malkin et al. and Shinozaki, either alone or in combination, do not anticipate or render obvious the embodiments of Applicant's invention as are set forth in Claims 35 and 36 that are dependent on Claim 32.

### Conclusion


In light of the above-listed amendments and remarks, Applicants respectfully request allowance of the remaining Claims.

The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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